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## LIKENESSES AND PORTRAITURE.

TO obtain a "good likeness" of a sitter is undoubtedly the chief aim of the average portrait photographer, particularly of the professional class. We are well aware that fancy styles, special costumes, and unusual effects in the lighting of portraits tell to advantage, and are often the chief attractions of the show-case, but by far the greater bulk of the work done in the gallery is the obtaining of such portraits as will be immediately recognized by the friends and family of the sitter, and be treasured objects when he is absent or dead.

What is this "likeness"? What makes it, and what mars it? We believe that it is simply the anatomical relations existing between the various features both singly and collectively, when in a state of repose or quietude, or, in other words, when not distorted by illness, suffering, grief, or passion of any kind. That this "likeness" is preserved in the dead goes without saying, and again, just as there is frequently a return to normal consciousness shortly before dissolution, so we will sometimes find a partial yet wonderful return to the likeness of self or family in the case of those dead persons whose faces have been long disfigured by suffering or illness.

We thus say that there are two important yet very different factors at work in an ordinary likeness of a person—no matter whether it be a photographic one or one made in any other way. The play of feature or expression is the vivifying element in the likeness, and while successfully caught at times, will again often be wanting entirely, especially when the negative has had a long exposure. It is one of the priceless improvements wrought by the modern rapid plates, that this play of feature may be registered on the sensitive surface if only the operator be possessed of the patience and skill necessary to catch it. The great success of the magnesium flash light portraits in this respect has been observed by everybody.

The wonder and novelty of being able to make instantaneous portraits at night have of course led to a very general employment of the flash light, but except in the hands of expert operators failures of all kinds are likely to occur. The high lights of the picture are frequently overdone, and contrast to great disadvantage with the black shadows which are a necessary concomitant of the brilliant light. Many exposures, too, have been lost from reflections into the lens from bright objects at the moment of the flash, which were not noticed or thought of previous to exposure. Although exquisite results can be obtained in portraiture by the use of the magnesium

flash light, they are certainly not to be had without systematic study and considerable experimenting. Complaints are also made that the light is violent and crude, and not sufficiently under control.

Mr. Rockwood, of New York, has recently made some beautiful effects with the Welsbach Incandescent Burners. He says that very good portraits have been thus obtained in from four to ten seconds, and that by employing a special rapid lens, even this short time could be reduced. A complete outfit, consisting of several of the burners with reflector, and screen to protect the lens from the direct light, can be had for an insignificant sum, and the cost of the consumed gas is not worth mentioning. We need hardly add that Mr. Rockwood's beautiful work bears out the truth of his assertion; and the fact of the Welsbach Light being milder and more under control of the operator, will doubtless render it a useful substitute for the magnesium flash light at all events, and at times for daylight itself.

The means to be employed in the obtaining of faithful likenesses have to be carefully studied by the portrait-taker; be he professional or amateur. Many an excellent sample of photographic work has been rejected by the sitter because it "did not look like him," while again many an ardent amateur has been dismayed at the atrocious perversions of likeness obtained in his early efforts.

The position of the camera, its distance from the sitter, its height above the ground, and the angle at which it is directed towards the sitter, are the main things to which the operator must look, as well as the character of light allowed to fall upon the sitter's face. We sometimes see the camera set on a stand at a certain height from the floor, and never altered for any sitter; standing figures full length, sitting ditto, children in nurses' laps, and even pet dogs and cats, are all photographed from the same height, the camera being tilted in one direction or the other in order to include the necessary amount of subject. Now, of course this is all wrong, and while we can not here take space to enumerate the reasons why, we can refer any who may be inclined to doubt it to the standard text-books, where they will find examples of the kind given, with explanatory cuts, which of course we could not reproduce here.

The lighting of the sitter will demand every attention. The old rule of allowing the principal light to enter from a point higher than the head when standing, and to strike the face at an angle of about forty-five degrees, having at the same time side lights stronger on one side than the other, is now a time-honored one. Too much so, indeed; for there are thousands of show-cases where it is plain to be seen that this rule has been followed in every instance, and sitters of the most varying kinds posed alike under the same light. Nevertheless, bearing in mind that the "likeness" is the chief thing sought after, it may fairly be asked whether, after all, the stereotyped regulation-cut photographic likeness will not often be more valuable to the public than the idealized attempts at "high-art" posing and Rembrandt lighting, where it is only too plain from the general expression that the sitter has felt more like a fish out of water than a sober person sitting for a portrait and thinking of nothing but how to pay honestly for the work when done.

A successful portrait of course deals with other things than the mere face. The drapery is a very important part of the picture, and must be carefully attended to. Ladies will be far more manageable and grateful subjects in this respect than men, whose angular, stiffly cut coats and trousers are only in rare cases amenable to

artistic arrangement. The fairer sex, however, claims dress as a fine art by right, and the stuffs worn will often fall in graceful folds and give very plastic and pleasing effects. The texture and the color of the drapery will both have to be looked to, and it must not be forgotten that some such fabrics as silk will reflect light enough to create high lights in the folds, even if the material be non-photographic in color. Velvets, on the contrary, are notorious for absorbing rather than reflecting light, and require a full exposure in order to give richness to the shadows without heavy blackness. This might seem self-evident, but, as we have before remarked in these columns, the importance of giving the plate time enough to impress the detail in dark shadows does not appear to be felt by the average portrait photographer. If an undertimed portrait of a darkly draped figure is unfavorably criticised, the answer will be that the face would not bear more exposure. So much the worse then for the operator's knowledge of the management of light and development. A word to the wise is sufficient in this connection.

For those who desire to study the subject of drapery, sculpture will be an attractive field. It has been very truly said that the latter has much in common with photography, from the fact of their both dealing in one color only. It might be objected that good collections of statuary are too rare to be of general use to students of photography, but we can easily meet this by reminding our readers that not only are good photographs of all classical masterpieces of the sculptor's art cheap and plentiful, but that there are many illustrated books with engravings of statues, which for the practical purpose we mention are really as good as the originals themselves.

If we were asked what was the best stuff for photographic drapery in general, we should say velvet. Charming effects have been obtained though from soft woolen fabrics of many kinds, alpacas (if soft), cashmeres, the French *laine claire*, etc., etc. The principal thing is that the stuff must be quite free from harshness, stiffness, or any inflexibility that would render it liable to assume angular forms rather than the easy and natural curves which constitute the charm of well-arranged drapery.

To those of our enterprising amateurs who desire to show their skill in treating difficult and yet beautiful subjects, let us say that fine photographs of large size of the hand or the foot are rarely seen. A shapely hand holding a cigar or pen, or playing on some musical instrument, or a well-formed foot in picturesque position, will be well worthy of the photographer's attention.

ELLERSLIE WALLACE.

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#### ARTISTS AND PHOTOGRAPHERS.

THERE is, and has been from the first, a tendency on the part of a certain class of photographers to decry the criticism of their productions by artists.

This comes, first, from the ignorance of the photographers as to the standpoint from which artists view their productions. And secondly, from the ignorance of the majority of artists as to the photographers' standpoint.

Thus seeing photography from opposite points of view, it is the old story over again of the silver and the gold shield. Both were right, because the shield was gold on

one side and silver on the other, and both were dogmatic because they each saw only their own side.

A photographer attending one of the recent exhibitions was astonished at a favorable notice of a picture (by one of the outside press) which he regarded as a very dirty plate, badly manipulated, and he came to the conclusion that the writer of the favorable criticism was a friend of the amateur who produced the picture.

Another man, an artist, was disgusted at a most flattering notice being given to a photograph in the same exhibition, which to him had no redeeming quality.

How are we to reconcile such a discrepancy, and get both men right from their individual points of view? Had the photographer been through the course of study which is necessary to make an artist, he would have seen that the picture praised was one of nature's transient moods, caught under conditions of great difficulty, where composition of line, light and shade, concentration and focus, were all there. The dirty plate was an accident, and was no more regarded than the bodies of dead flies would be upon an out-door sketch, if the sketch itself fulfilled the artistic conditions. In fact, the effort to catch the transient expression on nature's face was the cause of the dirty plate, in scrambling down the rocky bank of the stream. The dark slide fell, there was no time to get another slide, and the effect was secured on the plate which it was known must be dirty rather than miss it altogether, and the result was a picture worthy of the praise lavished upon it, although technically it was an imperfect photograph.

There, that is it, says the photographer; You admit it was an imperfect photograph, therefore in our exhibition of photographs it deserved condemnation instead of praise. Yes sir; I admit that also, if the exhibits were to be judged solely from a photographic standpoint, but you see you call in artists as well as photographers as judges, and the artist judged it from his standpoint, ignoring the faults of the photograph on account of its beauties as a picture.

Now what about the other picture, which the artist had passed by without a second glance, but the photographer had pronounced the best photograph there?

From a photographic standpoint it must be admitted it was perfect. Timed to a nicety, it was developed just right, printed and toned to perfection. Well, then, why did not the artist treat it as it deserved? He did, from his standpoint.

It was not the only perfect photograph in the exhibition. Technical excellence is not at all uncommon in these days, when half the excellence is bought with the box of plates. When the chemical and mechanical difficulties were much greater, and excellence of manipulation harder to attain, perfect photographs were the exception, not the rule. Therefore the perfect photograph was entitled to and received its due meed of praise: now things are different. In these days of photography reduced to three motions, something more is needed than technical excellence, at least half of which may be due to the plate manufacturer.

But, urges the photographer, You have not told me what the artist saw in the photograph.

He saw an ordinary exhibition of photographic skill,—a good lens in a good camera, pointed at a view calculated to show up the depth of the focus possessed by the lens, which had been stopped down to its smallest aperture to insure sharpness all over. What he missed was the knowledge necessary to bring out the best points of the

view. There was too much light on the picture, and from a wrong direction; there had been no effort to keep the lights together, and in consequence the effect was spotty; the extreme sharpness of each plane, caused by using a small stop, made the distance (which should have receded) challenge attention with the foreground, and in short, instead of being a picture it was a photographic map, therefore he passed it by as unworthy of notice, and was surprised when he saw it praised by one of the photographic journals, and wondered at the utter want of artistic feeling displayed in the notice. Is it any wonder, from his point of view, that he should sneer at the photographer calling himself an artist.

But (except in the case of the picture noticed above) there is no reason whatever why technical excellence in manipulation should not be shown in making photographs which shall be worthy of the name of pictures. As I have said before, the conditions of modern photography, making the technical easier, gives more time and opportunity for the exercise of artistic knowledge. *But the knowledge must be there*, and the photographer who sneers at the artist as a freak who does not know what a *photograph* is, must sit at the artist's feet, and learn what constitutes a *picture*, or (forgive the slang) he will get left.

He will have to unlearn a great many things, and learn to look upon some things he has hitherto regarded as essential to good photography as edged tools that will not bear playing with. He must learn that his smallest stop is not a friend but an enemy,—that in making a view he must use the largest stop possible for the requisite definition of the principal object in his picture, and not put in his smallest stop because it will *bring it all up sharp, you know*.

He must learn that there are many more *pictures* made with the sun in advance of the camera than were ever made with it behind, and that the less strong light there is in a view, the better the picture. He must learn to look out for reflections in water, as they are too apt to challenge attention from what ought to be the dominant light in the picture, and above all, he must learn not to be dominated by the exact proportions of his plate. Many a photograph exhibited has been spoiled as a picture because the photographer would mount his print the same size or proportions as his negative, when by cutting away an objectionable light or line which spoiled the composition, he would at the sacrifice of an inch or so of paper make a picture.

There have been in the journals of late one or two protests from certain photographers that they considered a photographic journal should be devoted to photography, and not so much space given to art matters in connection with photography. These protests come from men who will remain photographers to the end. Art is nothing to them. They carry on their business for dollars and cents, and they see no reason why the journals should print articles upon subjects that they have no use for. But have they no use for them?—that is the question. I think they have. They may stand still, but their brother photographers will not,—neither will the public, upon whom they depend for dollars and cents. The amateur craze is spreading, and will spread, and the knowledge that excellence in manipulation is no great mystery will put technical excellence more and more at a discount, and artistic excellence will be the criterion by which photographic productions will be judged. Then will the photographer who despises artistic instructions find that it means a loss of dollars and cents to him.

G. HANMER CROUGHTON.

### MISCELLANEOUS NOTES.

#### STRONG OR WEAK DEVELOPERS.

**W**HATEVER good results photographers may achieve by their special pet methods of strong or weak solutions, it does not follow that any one mode of procedure is applicable to all cases.

The best results are obtained by proper adaptation of the developer to the peculiar character of the subject, and to the conditions under which the exposure has been made. It is of the utmost importance to know the character of the subject photographed,—indeed, of more importance than to know the exact number of seconds of exposure,—yet how often does the amateur consign his plates to the professional developer without giving the slightest hint as to the nature of the subjects, though he may be very accurate in quoting the time given. It is also good advice to recommend the amateur to develop his plates before the knowledge of the character of the things photographed has faded from his memory.

It is not always the best policy to follow the directions given to amateurs to start with a very weak developer. A strong developer acting energetically is often necessary for securing brilliant results.

As to the question of timing plates, the consideration of the nature of the subject is of as much importance as the quality of the light. A subject evenly lighted really requires less exposure than one in which certain portions receive the maximum, and others the minimum of illumination, and in which there are no gradations of light and shade. Hence it may often be literally a saving of time to shut off some of the light in making exposures.

#### VALUES MASKED BY COLOR.

THE failures which amateurs in portraiture make are principally due to the lack of knowledge in deciding when a face is properly illuminated. Unless one can judge from the appearance on the ground glass there is little hope of success for him. The beautiful modulations of color in the human face mask, to an inexperienced eye, the abrupt shadows.

One must be able to divorce color altogether from the object, and to look for the values only,—the relative tone or darkness of one part with another. The values in Rembrandt's paintings are more wonderful than his color. It was said that when Tintoretto was asked which were the most beautiful colors he replied, "Black and white," intending, no doubt, thereby to mark the importance of light and shadow over color.

Great as were the Venetians and the later Dutch painters as colorists, they always availed themselves with consummate skill of the aid of black and white.

#### SKIES IN PHOTOGRAPHS.

It has been aptly said that if rocks, trees, mountains, meadows, and streams are the positive features of a landscape, the expression is from above. The scene smiles or looks grave and frowns, according as the sky is bright or lowering with clouds.

In painting, skies are of paramount importance. A bad sky is evidence at once that the painting is bad. We have all heard of Turner's wonderful skies, though we may not all have seen them. Photography in the delineation of form is even superior to the most skilled draughtsman. Still we see very few fine photographs of skies. True, the sky's intense brightness often burns out on the sensitive film the more delicate forms of clouds, and the beautiful light, fleecy forms are lost. The clear, intense azure which sets them off unfortunately does not register itself with the same contrast with the clouds, as in the vault of heaven. Still it is within the reach of photographic art to secure, by means of sky shades and other devices, many of the various cloud phases, and even some of the delicate, filmy shreds of thin vapor, by availing itself of the aid of the modern orthochromatic plate, so there should be no excuse for the total neglect of the beauties of the sky. The fatal facility with which photographic processes are effected is apt to lead to carelessness. A beautiful cloud negative is worth the expenditure of as much time in the procuring as would be required to draw the clouds upon paper, but this is not exacted by our clever art,—only a little less haste, a little more trouble. We would even suggest the taking of skies *per se*, and would delight to see special exhibitions of sky scenes at our annual shows of photographic work. Printing in skies from separate negatives is often resorted to, and the effect is charming if care, taste, good judgment, and common sense are exercised, but too often the skies are literally out of joint with the landscape. The photographer will sometimes attach cloud masses taken with an almost vertical sun to a scene in which the long shadows betoken either evening or early morning. Sometimes, for variety's sake, if he happen to have but a single cloud negative, he will print it in upside down.

The principal objection to printed-in skies is in their obtrusiveness. In most cases the clouds come forward too prominently, seeming almost to bulge out from the plane of the landscape.

While upon the subject of clouds we would suggest the taking of rainbows. We recollect seeing away back in wet-plate days some very good representations of natural rainbows (not etched-in abominations) in the sky and over waterfalls. Of course the relative tone value of the colors was not properly rendered, but now that we have rapid orthochromatic plates, it would be worth while trying to secure such subjects, as well as other meteorological phenomena quite within the scope of photography. One thing is to be remembered,—the meteorological photographer should have his camera always in readiness, as these phenomena are very evanescent. The detective cameras might do excellent service here.

#### THE ELEMENTS OF SUGGESTIVENESS IN A PHOTOGRAPH.

ALTHOUGH the exercise of the imagination, the creative power of the painter and poet, is far beyond the highest aspiration of the photographer, yet the quality of suggestiveness may be found in a simple camera picture as the chief element of its attractiveness.

Photography, despite its intense realism, may tell a story in the drama of everyday life in such a way as to excite interest or sympathy. By a proper selection and combination of actual facts, perhaps individually dull and prosaic enough, a mere

photograph can give the mind material for the construction of a picture rich in thought and full of feeling.

When photography thus brings together objects stimulating the association of ideas and creating a mental picture, thereby producing the feeling of surprise, novelty or unexpectedness, it surely deserves to be admitted to the rank of a work of art.

#### ORNAMENTAL MATT BORDERS ON PRINTS.

M. LEON VIDAL suggests a very clever device for obtaining a plain, smooth surface bordered by a matt surface, around the same print. This is secured by using heavy glass plates, ground to any desired width around the borders, the centres remaining smooth. The wet print is squeezed down to the glass in the usual way, and allowed to dry. Any desired ornament, either in relief or depression, could be engraved around the margin of the glass plate, and of course would be produced upon the print.

This suggestion might be made use of for introducing a novel style of work to the public, who are constantly looking for something new in photography.

The process of course is intended for plain paper prints. If it is desired to so treat albumen prints, it would be advisable to employ some medium to prevent adherence to the glass.

#### HALATIONS IN INTERIORS.

MANY are the devices which have been suggested to overcome or to correct halation, the great pest in interior photography, but since the introduction of the paper films, and recently the celluloid films, we see less disfigurement from this cause.

The use of the flash-light has likewise enabled photographers to obtain most difficult interiors without a trace of the marring influence of over-zealous lights.

The flash-light, in connection with the celluloid films, which Mr. John Carbutt has the credit of first introducing in this country, will accomplish wonders in a few seconds which formerly hours failed to do.

It is surprising that photographers when taking interiors do not avail themselves of these two great agents for securing perfect work, the flash-light and the flexible film.

#### THE ETHICS OF PHOTOGRAPHY.

SOME one has said that photography is a moral agent in the improvement of man, inasmuch as it tends to inculcate the principles of honesty by teaching the importance of just weights and balances, but be this as it may, we are inclined to think that the adoption of a code of ethics by the detective photographers would tend to prevent some of the abuses of photography.

It is true there can be no humor without a belittling of somebody or something. There is a victim always implied, a taking down of some one's importance, or a depreciation at the expense of somebody's dignity. Nevertheless, we believe that the photographer in search of the ridiculous should never so far forget the need of his own self-respect as to literally stoop to point his camera at scenes of privacy, or to take advantage of the unintentional positions of people of respectability who have no

means of protecting themselves, simply because they are unconscious of the scrutinizing eye of the camera.

Photographs have been shown us, made by professed gentlemen, who are most punctilious in their observance of the code of social etiquette, yet strange to say have no shame in acknowledging the advantage they have unscrupulously taken of the very people in whose society they mingle, and before whom they pose as honorable men.

#### **RAPID RECTILINEAR LENSES vs. PORTRAIT TUBES.**

To the photographer of limited means it is of paramount importance to know just what is needed for his special requirements as a portraitist, that he may not be put to unnecessary expense in the purchase of apparatus.

Portrait lenses, as the name indicates, are intended solely for portraiture, and are made to fulfil the special requirements.

Rapidity is the great desideratum, and every other quality is subordinate, if not sacrificed to this end.

They have no flatness of field or depth of focus, and very poor covering capacity, so that the question at once arises, Why do photographers continue to use them in their galleries when we have such perfection of qualities in other lenses, which do not fall short of them in the quality of rapidity.

In the days that are passed there was a valid reason why there should be a preference for portrait tubes on account of their rapidity, despite their shortcomings in other respects. Then we had comparatively slow plates. Now we have them exceedingly rapid. Then we had none of the wonderful rectilinear lenses we now have, with flatness of field, depth of focus, and great covering capacity, capable of doing as good, if not better, work with a full opening as a portrait tube stopped down.

For portraiture, apart from the question of economy, we would prefer a long focus rectilinear lens to any portrait combination.

#### **SLOW DRYING OF GELATINE NEGATIVES PREFERABLE TO RAPID DRYING.**

THE fear of encountering that dread invader of gelatine—frill—makes one anxious to reach the last stage of the process—the drying, and hence recourse is had to methods of acceleration, but any method which hastens the drying of the film is not only attended with immediate danger, but also carries with it a tendency to so alter the constitution of the film as to make it liable to succumb to any subsequent operations of intensification or reduction to which it may be necessary to subject it.

If one will take the trouble to examine the film of a slowly dried negative, there will be found a uniformity in color not shown in a rapidly dried plate. The color, too, of a slowly dried plate is much lighter. But what is of most consideration is the greater resistance to hard treatment shown by the slowly dried plate.

The difference in quality is very apparent when, as sometimes happens, the margins of a plate are allowed to dry spontaneously whilst the drying of the centre is accelerated.

#### **VERTICAL PERSPECTIVE.**

WE are so familiar with horizontal perspective that we notice at once any exaggeration of the convergence of the lines, but our eye has not been so trained to

vertical perspective. We are told that all the vertical lines in a photograph of a high building should be as perpendicular as the actual lines of the edifice, and we accordingly strain all the capabilities of our cameras and lenses to secure the desired result, when really if we did accomplish all that we aimed for we would not in fact have a true representation of the structure as it appears to the eye.

There ought to be a slight convergence of the lines, for pictorial effect. We never could see any sense or reason in the designs of those draughtsmen who represent architectural elevations as if they were top-heavy. It is this rigid adherence to what they know is the actual state of things which gives the unpleasant appearance to their drawings.

Even if the point of sight is much above the level of the ground there is still a convergence up and down.

#### PHOTOGRAPHING A MIRAGE.

A SPECIAL despatch from San Francisco, California, says: "A wonderful photograph of an Arctic mirage has just been received from Professor Richard D. Willoughby, the pioneer miner scientist of Alaska. It was taken at Glazier Bay, and represents a mysterious aerial city. The view is apparently taken from some spot on a hill. In the foreground is a graveled walk, a stone fence, a rustic seat and a child at play. Beyond the stone wall are the roofs of houses, with clumps of trees at the sides. In the distance are the half-completed towers of a cathedral and several tall public buildings, while far away, enveloped in what appears to be a cloud-like atmosphere, are tall smokestacks and towers of churches. The style of architecture is decidedly modern.

"A hundred people or more were shown the photograph yesterday. Some regarded it as a fraud, while others believed it the genuine photographic result of a mirage. The mysterious town has been named the Silent City. The best-informed people in San Francisco say the picture may be that of either Victoria, B. C., Halifax or Montreal—most likely the latter, as there is a cathedral there resembling the one in the view. Some photographic experts think that the picture was produced by a trick similar to the so-called spirit photographs. This, however, is stoutly denied by those who know Professor Willoughby. He was the first American who found gold in Alaska, and for fifteen years has been a prominent resident of that Territory.—*Phila. Evening Bulletin*.

#### A HINT TO THE PHOTOGRAPHER.

"The public is a great baby, which craves amusement and excitement. It is easily pleased with what is given it, but show it something else better and it understands and makes comparisons at once."

GEORGE SAND, in *Consuelo*.

#### A GOOD WORD FOR THE PHOTOGRAPH.

GOOD photographs are always instructive to the artist; the drawing is so beautifully correct in details. After turning over many, if they be well selected, it seems almost impossible to look at sketches, except by the very first masters.—TRISTRAM J. ELLIS, *Sketching from Nature*.

## ALLOTROPIC FORMS OF SILVER.

IN the June number of the *American Journal of Science*, M. Carey Lea contributes an article on the forms which metallic silver assumes.

He shows that metallic silver may exist in a perfectly soluble form, dissolving easily and plentifully in water, and again exist in a varying degree of decreasing solubility down to absolute insolubility, quite distinct from ordinary silver.

He indicates three distinct forms.

*The soluble form.*—A solution of ferrous citrate is added to a solution of silver nitrate, the lilac precipitate washed with a five per cent. solution of nitrate, citrate, or sulphate of ammonia or soda, in which it is perfectly insoluble.

The color changes on washing to deep blue. The iron is now thoroughly eliminated by repeated solution in water and reprecipitation by nitrate of ammonium, and finally with strong alcohol. The aqueous solution of this form of silver is blood red.

It is not a very minute division of silver particles held in suspension, but actual solution, as may be proved by optical tests.

Mr. Lea says :

"The inference, therefore, seems to be very strong that there exists an allotropic form of silver, freely soluble in water. This is a property so exceptional in a metal that I have admitted it with much hesitation. The principal arguments are as follows :

"The content of silver in the various products was very carefully, and, I believe I may say, quite accurately determined ; it was extremely high, always above ninety-seven per cent. As already remarked, this virtually excludes the presence of all other elements, except hydrogen and possibly oxygen. These elements were carefully searched for, but their presence could not be detected. To suppose that we had to deal with a mixture in which some compound of silver was mixed with metallic silver was not possible, for, as the whole was soluble, we should still have had to admit the solubility of silver.

"We have, consequently, to deal with a substance containing over ninety-seven per cent. of silver, and neither hydrogen or oxygen in combination with it—the remaining two or three per cent. fully accounted for by ferric oxide and citric acid, determined at present as accidental impurity ; the substance itself readily amalgamating with mercury by simple friction, nevertheless abundantly soluble in water. If I had been able to find any other explanation for these facts, without admitting the solubility of silver, I should have adopted it. But none presented itself.

"Whether in solution it exists as a hydrate—that is, in more intimate combination with one or more equivalents of water—cannot be said with entire certainty ; but the easy amalgamation with mercury seems hardly to favor that view."

*The Insoluble Form.*—The insoluble form of silver is produced by precipitating by sulphate of magnesium, copper, iron, or nickel, or by bichromate or ferrocyanide of potassium, or by nitrate of barium.

If any of these salts are employed in a very dilute solution, as a precipitant, the resulting precipitate is insoluble in water, but if the same solution is concentrated, it becomes once more soluble in water. The film of the insoluble form of silver is greenish in color, blue in certain lights, and yellow in others.

The gold, yellow, and copper-colored silver is produced by the reduction of silver nitrate by ferrous nitrate. The resulting precipitate is first glittering red, then black. The silver nitrate is entirely converted into the allotropic form, which is insoluble in water, and resembles lumps of highly polished gold.

The allotropic forms of silver are distinguished from ordinary silver by the following characteristics: When any of the films on paper are dipped in a solution of ferric chloride, or of iodine dissolved in iodide of potassium, magnificent intense shades with metallic reflections are produced, similar to interference colors.

These wonderful discoveries of Mr. Lea are the result of years of patient investigation, and they open a new field, the value of which it is difficult to estimate. It may lead us to understand the philosophy of many photographic mysteries of which we are now profoundly ignorant.

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#### IMPROVING NEGATIVES.

THERE is more uniformity in the technical character of the work made by the professional portraitist than is found in the productions of the landscape photographer or the amateur, simply because the conditions under which the former works can be brought to more uniformity. But it does happen at times that errors of judgment occur to the professional, and the negatives produced are not up to the standard of excellence. At such times he is anxious to look around for a trustworthy remedy. "Trustworthy," we say, because experience has taught him to look askance and doubtingly at the various therapeutics offered by the photographic mountebanks, whose name is legion. He is naturally cautious of subjecting a valuable negative to the tender mercies of an advertised nostrum, but the medicine proposed is not always to be denounced because it has failed in cases to be an effectual means of salvation to a weak or an obdurate plate.

The cause of failure may be in the inability of the operator—or it may not be. We have seen certain formulæ produce most admirable results, and we have seen the very same preparations fail utterly. Sometimes the failure was due to want of care and judgment; sometimes it happened with the exercise of the greatest care and judgment.

For instance, some time ago in connection with Mr. John Cassebaum we proposed an intensifier for gelatine plates, composed of gallic acid and silver (See AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. 10, p. 166). In our hands and most others' it worked most admirably, and we were at a loss to understand why it should fail with many of whose ability we were well aware and of whose care and judgment we were confident.

But at last after many successes we began to have some failures, and after a careful investigation we discovered that despite all care this gallic acid and silver intensifier would not work with all brands of plates equally well.

With this acquired knowledge we shall here recommend only such remedies as shall work well under all conditions, presupposing the possession by the operator of a certain amount of common sense.

In the processes of reduction and intensification the agents employed will be found to act better when applied directly to the dried surface of the film.

It is the practice of most operators to first soak the plate in water, with the view of securing uniformity of action, but uniformity can be had without the use of this watery bath, while there is less liability to stain the negative from subsequent imperfect washing. The action upon the dried film being superficial, there is less

tendency to the persistence of the chemicals. We make use of a modified mercuric intensifier composed of

|                                  |        |
|----------------------------------|--------|
| Bi-chloride of mercury . . . . . | 1 oz.  |
| Bromide of ammonium . . . . .    | 1 oz.  |
| Water . . . . .                  | 10 oz. |

in which the plate is allowed to bleach, then washed and transferred to a bath of sulphite of soda and water. Sulphite of soda is preferable to ammonium, as the color of the negative is better for printing. It is necessary, however, to add a few drops of acid—sulphuric, acetic or citric—to the solution of sulphite to make it neutral, otherwise a reducing action takes place if the plate is allowed to remain too long, and the half tones of the negative are destroyed. The addition of the acid entirely prevents the reduction, and the plate may be left in the solution till thoroughly darkened through without any risk.

It is not generally known that if the intensification is carried too far the negative may be again reduced to the proper degree.

Our favorite reducer is the per-chloride of iron and citric acid solution consisting of

|   |        |
|---|--------|
| Per-chloride of iron (solid) . . . . .              | 4 grs. |
| (Not the medicinal preparation, which is a liquid.) |        |
| Citric acid . . . . .                               | 4 grs. |
| Water . . . . .                                     | 1 oz.  |

The over-intensified or over-developed negative is placed in the solution, and rocked until a faint bleaching action sets in. It is then examined to see if the reduction is carried far enough. If it be desired to accelerating the reducing action, the plate should be rinsed off from the iron and dipped for an instant in hypo solution. Do not let the plate lie for more than a few seconds in the hypo before examining the progress of reduction, as the combined action of the per-chloride of iron and hypo is very energetic. This reducer is most excellent to remove fog from a negative which one wishes to intensify. If the fog is suffered to remain it goes on intensifying with the rest of the negative, and makes the last stage of the plate worse than the first.

A dip in the per-chloride without the hypo, followed by a good wash under the tap before intensification by the mercury, often converts a tame, foggy negative into a first-class one.

Some photographers have objected to the use of the per-chloride of iron as tending to ruin the negative, but we can say that we have negatives so treated which have been used in printing large editions of photographs without showing any deterioration.

The per-chloride of iron followed by the hypo is useful in local reduction of too great intensity.

The dense parts of the dried negatives are painted over with a brush dipped in the solution of iron, the brush being kept in motion to insure uniform action, after which the plate is dipped in the hypo and then washed.



## CONCERNING THE LIGHTING OF THE SITTER.

THE proper method of illumination of the face for portraiture may depend a good deal on the peculiar taste of the operator and upon the particular demands of the sitter, but one thing is certain, there are current some very bad methods of illumination, which ought not to be tolerated for an instant.

Good taste, if not inbred, no doubt is acquired by a study of the work of the celebrated portrait painters, but it will not always do to follow the painters if we have any regard for our credit with the public as first-class photographers.

It may be better at times to repress our artistic aspirations, and to follow the prosaic injunctions of a few definite rules of illumination, as set forth by practical men.

There are not many worthy books on the subject of practical illumination, because the practical men are not apt to exhaust their energies in a flow of ink, but some valuable hints may be gleaned from the text-books and photographic periodicals,—enough anyhow to stimulate to individual endeavor to find out something for one's self,—which self-acquired information is the best of all.

Let us be practical. Suppose we take an ordinary billiard ball, and so place it that the illumination comes from above; what appearance will the photographs of it present? Not at all the representation of a perfect sphere, but of a spherical body flattened at the poles. That is, to the eye, but if we actually measure the impression we shall find that the contour of the ball is a perfect circle.

The camera has faithfully drawn the image as it actually is. Its appearance is an optical deception. Now let us admit the light in from the side only, and we have another optical delusion. The ball is depressed sidewise.

The state of things, or rather the optical appearance of things, is quite different if we illuminate the ball with a full front light. We have a perfect circle, but the condition of the sphericity is gone. The ball is flat, and seems to be compressed front and back.

Let us subject our billiard ball to the influence of several sources of light at once, and what is the result? A perfect representation of sphericity. What were the lights we employed? An upper, a side, and a front light at the same time, duly regulated.

The highest light on the object will be at a place directly opposite the point where the three lights combine. From this point the gradations go off in opposite directions by imperceptible degrees until lost in the dark shadows.

Now, let us substitute for our billiard ball another kind of ball—the human head,—but we must remember from the start that we cannot treat our human head exactly the same way as we do ivory spheres. In portraiture the task is not so much the rendering of the relations of form, as the subordination of parts to the creation of an agreeable expression in the countenance.

We shall be obliged to deviate from our set method of illumination. The light must not be allowed to fall directly from above upon the head, inasmuch as thereby we would have the projecting forehead casting the eyes in shadow, and we must modify the front light, moderating its force so as to present the due relation of the features,

which are like so many depressions and elevations, and must have their shadows so cast as not to transform a beautiful face into something harsh and featureless. The front light must be soft and diffuse.

Now let us turn to the direct upper light, or rather let us turn the direct light so that it is shut off behind the sitter, and converted into a front upper light. The side light must be allowed to have a little dominancy over the others because it is needful in rounding up the countenance and giving contrast to the shadowed side. The angle at which the head should receive the strongest light cannot be definitely fixed, as some say, at  $45^{\circ}$ ; yet it should not deviate very far from this angle.

Enough has been said in connection with our talk about the billiard ball to show that it is possible to deceive by adopting certain methods of illumination—that is, to make things look somewhat different from what they are. Now this facility of deception allowed by photography may be made an effectual means for gratifying the whims,—no, let us say the taste, of our patrons.

It is common failing of humanity, quite laudable, to desire to look better in their pictures than they actually know they are, and we must gratify this demand if we have any regard for personal reputation as artists. Really people are not always to blame because they are displeased with the result the photographer furnishes them as a counterfeit presentment of their image. He cannot be excused before a fair tribunal when he pleads that he gives only what actually exists. This may be true, but he has no right to emphasize, let alone exaggerate, personal defects. His function as an artist is to tone down the irregularities—to make less apparent these flaws in nature.

An operator who thoroughly understands the principles of his art takes advantage of the felicities of proper illumination, and employs them to good purpose in obviating defects, in making his patrons happy and his exchequer full.

How easily is a beautiful face transformed into a block of ugliness by the simple intensifying of the front light. The cheeks beneath the eyes are sunken, the bridge of the nose seems much broader, the eyes and mouth are too sharply defined, and project from the face. In vain all your retoucher's arts to make a thing of beauty out of this Frankenstein.

The case is as bad with injudicious application of the other lights. Unless the fact is demonstrated no one will believe that the contours are the same in a badly illumined as in a properly illumined face, and that it is only the shadows which are in fault. The picture produced in the strong side-light gives an elongated head to the sitter, a pug nose, a depressed mouth, close-set eyes, low forehead, pointed chin, swollen cheeks. The picture in a strong upper fore light gives a broad forehead, high cheek bones, hollow cheeks, flat nose, large mouth, and a broad, turned-up chin.

It is plain to see that the operator must make a diagnosis of every case that comes to his gallery. He must determine upon the remedies for your great-mouthed, your flat-nosed, your hollow-cheeked humanities.

For patients having low foreheads, projecting eyes, and decided jaw bones, draw down the side curtains, and shut off a good deal of the light from that source, so that the upper light may predominate.

A full, fleshy countenance needs a shielding off of both side and upper lights, but there is danger in this method, as there is a likelihood of destroying the modula-

tions of the face. As we said at the beginning of this article, we cannot always follow the artist in illumination.

Grace of form and harmony of color often mask the incongruity arising from almost impossible methods of lighting the figure, but there are many portrait painters whom we may follow with good purpose. The moderns seem to take more care in studying illumination. Perhaps photography has given them a few lessons.

J. B.

### THE SEMI-CENTENNIAL OF THE DISCOVERY OF PHOTOGRAPHY.

[It is just fifty years since the wonderful discovery of Daguerre was published to the world. We may indeed trace the beginnings of photography back to the sixteenth century, or to a still earlier period of the middle ages, the days of the alchemists, but nothing can detract from the greatness of Daguerre's revelation. His method for producing pictures by the agency of light was unique, and we might say perfect like Minerva from its very birth.

The investigations of his contemporaries, both in England and France, do not lessen the brightness of his renown, though their priority be well established. All attempts previous to his were imperfect and incapable of yielding any definite practical results, whilst his productions demonstrated the fact of the facility with which delineations from nature could be made by chemical and physical agencies. His work in beauty and delicacy has not yet been surpassed.

There were at the time many eminent scientific men in Europe and America who at once perceived the particular importance of the discovery, and who were not slow in expressing their admiration of Daguerre's genius. They declared that it belonged exclusively to him, being distinguished from that of his immediate predecessor both in its cause and by its effect.

While recognizing the value of the earnest labors of his fellow-countryman, M. Niepce, they distinctly expressed their belief that the honor essentially belongs to Daguerre.

At the report made in the Chamber of Deputies, in July, 1839, when a grant of an annual pension was made to Daguerre and M. Niepce, Jr., M. Arago, the most distinguished scientific man of the time, if not of the century, made a most eloquent address.

We have read this speech of M. Arago's with great interest, and believing that it would afford the readers of the *Journal* pleasure, we have reprinted a translation made at the time by J. S. Memes.

We believe photography is now fulfilling the glowing future which M. Arago predicted for it.

#### ADDRESS BY M. ARAGO.

##### GENTLEMEN:

The interest manifested both within these walls and throughout Europe in those labors, the result of which M. Daguerre recently submitted to the public, has been lively, striking, and unanimous. The Chamber, therefore, in all probability expects of its commission only a simple and entire approbation of the Bill presented on this subject by the Minister for the Home Department. After mature reflection, however, it appeared to us that the office with which you had invested us imposed other duties. We have deemed that while applauding the happy idea of instituting national recompenses in favor of those inventors whose interests the ordinary legislation by patent could not protect, it was requisite, in the very first steps of this new career, to shew with what reserve, with what hesitation the Chamber would proceed. To subject to a minute and rigid examination the work of genius upon which we are this day called to legislate, will be to discourage ambitious mediocrity; for minds of this character also would otherwise aspire to intrude on your notice their ordinary and inconsequent attempts; it will prove that you intend to place in a most elevated

region the recompenses which shall be demanded of you in the name of national glory ;—that you will never consent to bring them down from this elevation—or by lavishing them to tarnish their splendor.

These few remarks will enable the House to understand why we have been led to examine,—

If the process of M. Daguerre be incontestably an invention,—

If this invention will render to archeology and the fine arts services of value,—

If it can become generally applicable,—

And finally, if we may hope that by it the sciences will be benefited.

Two centuries ago a philosopher of Naples, Giovanni Battista Porta, discovered that if a very small hole be pierced in the window-shutter of a room, completely darkened in other respects ; or better still, if the aperture be perforated in a thin metallic plate applied to the shutter ; all the exterior objects from which rays can enter through this opening will be represented on the opposite wall ; in dimensions enlarged or diminished according to the distance. He found also that even with this imperfect apparatus, throughout a large extent of the picture, objects were painted in their natural colors, and with considerable truth of linear perspective. A short time afterwards Porta found that it was not necessary to have the opening very small, thus limiting the view, but that if the perforation were covered with a lentiscus or convex glass, it might be of any dimension. He remarked also the great improvement thus produced in the delineation. The images passing through the simple medium of the hole were without distinctness of position, intensity of color, or neatness of outline. On the contrary, with the lentiscus, the mimic forms rivaled the vivacity and strength of nature herself, the focal distances being properly adjusted. It is well known that all these discoveries of Porta have become truly astonishing in precision of detail and strength of coloring since the art of constructing achromatic glasses has been brought to its present perfection. Formerly a simple lentiscus composed of one kind of glass only, and consequently acting with as many separate focuses as there are colors in the undecomposed white ray, transmitted a comparatively indistinct image of objects. Now that we employ achromatic glasses which combine all the incident rays in one focus, and that a periscopic construction of the apparatus likewise has been adopted, great perfection has been given to its effects.

Porta constructed also portable dark chambers ; these were composed of a tube longer or shorter, armed with a lentiscus as its optic instrument. A screen of white paper, or some prepared substance, occupied the focus, and upon it the images of external objects were received. The Neapolitan philosopher proposed his simple arrangements for the benefit of those who had not been taught drawing. According to him, nothing else was required in order to obtain the most perfect transcripts of nature than merely to trace carefully the outline of the focal image.

These anticipations of Porta have not been completely realized. Painters and draughtsmen, those particularly who execute large views for panoramas, dioramas and theatres, have indeed still recourse to the camera. They, however, employ it merely to group objects *en masse*, to trace their contours, and to fix them in their proper position and magnitude, according to the principles of linear perspective. As to those effects proceeding from the imperfect transparency of our atmosphere, whence arise all the charms of tone and coloring, which by a sufficiently erroneous appella-

tion are designated by the term aerial perspective,—the most experienced artists are aware that in reproducing these the camera affords them no assistance. No person, however, has ever witnessed the neatness of outline, precision of form, the truth of coloring, and the sweet gradations of tint, without regretting that an imagery so exquisite and so faithful to nature could not be made to fix itself permanently upon the tablet of the machine. Who has not put up his aspiration that some means might be discovered by which to give reality to shadows so exquisitely lovely? Yet, in the estimation of all, such a wish seemed destined to take its place among other dreams of beautiful things,—among the glorious but unpractical conceptions in which men of science and ardent temperament have sometimes indulged. This dream, notwithstanding, has just been realized. Let us take, then, the invention in its germ, and mark carefully its gradual unfolding.

Long ago the Alchemists had succeeded in forming a solution of silver in muriatic acid. This compound, which assumes the appearance of white salt, they called *lunar* or *caustic silver*. This salt possessed the remarkable property of becoming black by light, and of blackening more or less rapidly in proportion to the intensity of the incident rays. Cover a sheet of paper with a wash of lunar caustic, or, as we say at present with a wash of chloride of silver; form upon this by means of a lens the image of an object; the shaded parts of the image—the parts, that is to say, upon which no light falls—will remain white; the portions, on the other hand, strongly illuminated, will become completely black; the demi-tints will be represented by grays more or less dark. This monochrome, in short, will be the reverse of the real object as respects the lights and shadows.

Again, if an engraving be placed upon a sheet of paper, moistened with a solution of chloride of silver, and both be exposed to the solar light, the engraving being uppermost, the dark lines of the latter will intercept the rays, and the corresponding portions of the paper below will retain their original color. In those parts, on the contrary, which lie immediately under the lights of the engraving, the solar rays, acting through the imperfect transparency of the print, will blacken the chloride wash. The necessary consequence of this operation will be a copy of the engraving, correct in outlines, but reversed in its effects, the lights being reproduced in shadows and the shadows in lights.

These applications of this curious property of the chloride of silver, one would think, might have readily occurred to the Alchemists, the first discoverers of the substance, or to their early successors, who devoted more attention to practical results. No so, however, was the case. We must descend to the first years of the 19th century before we detect even the beginnings of the photographic art.

About this time our countryman Charles, in his lectures made use of a prepared paper to produce silhouettes, or black profiles, by the action of light. Charles died without describing the preparation which he employed. As the historian of science, under pain of falling into inextricable confusion, is not authorized to proceed, except upon printed and authentic documents, it is no more than justice to assign to Wedgwood, the celebrated percelain manufacturer, and inventor of the pyrometer for high temperatures, the first application of this new art.

The memoir of Wedgwood appeared in 1802, in the number for June of the *Journal of the Royal Institution of Great Britain*. The author there proposed by

means of skins, or with paper steeped or washed in chloride or nitrate of silver, to copy paintings on glass, as in the windows of churches, and also engravings. "The images formed by means of the camera obscura," we quote faithfully a passage from the article, "have been found too faint to produce, in any moderate time, an effect upon the nitrate of silver."

The commentator upon Wedgwood's experiments, the illustrious Davy, does not contradict the assertion relative to the images of the camera. He merely adds, as to his own experiments, that he has accomplished the copying of very small objects by the solar microscope, but only *at a short distance from the lens*.

Finally, neither Wedgwood nor Sir H. Davy discovered how, the operation once finished, we were to give it permanence, or, if I may be permitted the expression, —to remove from the canvas of their pictures the defect of becoming black by the light. It thence resulted that the copies which they had obtained could not be examined in day-light, for in a very short time they became uniformly black, and all lineaments of the previous objects disappeared. What was this in reality but to produce imagery so evanescent that only a furtive glance could be cast upon the work, and that by the light of a lamp? The whole would have vanished in a few seconds if these delineations had been examined in day-light.

After these imperfect, these unimportant essays, of which we have just given an analysis, we arrive at the researches of Messrs. Niepce and Daguerre, without encountering in our course any intermediate experimenters of any country.

The late M. Niepce was a country gentleman, who lived on his property near Châlons, on the Saône. He devoted the leisure of a studious and retired life to the pursuits of science. One of his discoveries in reference to a contrivance for substituting heated atmospheric air in place of steam in machinery, underwent, with considerable success, a very rigorous trial,—an examination before the Academy of Sciences. The *photographic* researches of M. Niepce appear to have begun so early as the year 1814. His first connection with M. Daguerre dates from the month of January, 1826. The indiscreet revelations of an optician at Paris disclosed to him the experiments of Daguerre, then also engaged in researches whose object it was to fix by some chemical or other process the images obtained with the camera. These facts are authenticated by letters which have been submitted to our perusal. In the event then of dispute or previous claim, the first photographic labors of Daguerre can thus be determined with unquestionable certainty to have attained some shape in the year 1826.

In the following year M. Niepce repaired to England. In the month of December, 1827, he presented a paper on his photographic experiments to the Royal Society of London. This memoir was accompanied with several sketches on metal produced by methods then already discovered by our countryman. On an attempt having been made to establish a priority of invention, these sketches, still in a state of good preservation, were immediately and honorably produced from the collections of certain English philosophers. They prove beyond dispute, as respects both the photographic copies of engravings, and the formation, for the use of artists, of plates in the state of advanced etchings, that M. Niepce in 1827 was acquainted with a method of making the shadows correspond to shadows, the demi-tints to the demi-tints, the lights to the lights. These early essays further prove that he had discovered how to

render his copies, once formed, impervious to the erasing and blackening effects of the solar rays. In other words, the ingenious experimentalist of Châlons, by the composition of his grounds, had so early as 1827 resolved a problem which had defied the lofty sagacity of a Wedgwood and a Davy.

The deed of co-partnery between Messrs. Niepce and Daguerre, for mutual investigating and following out the subject of photography, is fortunately registered among the public records, and bears date December 16, 1829. Later deeds entered by M. Isidore Niepce, as his father's heir, and M. Daguerre, distinctly mention, in the first place, the improvements made upon the earlier methods of the philosopher of Châlons, by the Parisian artist; in the second instance, they also particularize processes entirely new, invented by M. Daguerre, and possessing the advantage (in terms of the deed) "of producing images with sixty or eighty times greater rapidity than the earlier applications of the photographic principle."

In what we have just observed regarding the studies of M. Niepce these restrictive expressions have doubtless been remarked—"for the *photographic copy of engravings*." It was only, in truth, after a multitude of fruitless attempts, that M. Niepce himself had almost renounced the idea of ever being able to fix the image in the camera. The difficulties which presented themselves in the course of his investigations were chiefly the following. The preparations which he at first employed as the ground of the future design, did not yield with sufficient rapidity to the action of the solar rays, so that ten or twelve hours proved hardly sufficient for producing a single design. During an interval so protracted the shadows cast upon the various points of view were very much altered, indeed, entirely changed in place, form, and extent; they had passed, in fact, from the left to the right of objects, and this traverse, wherever it operated, gave birth to flat and uniform tints, without life or distinctness. In the results of a method so imperfect, all the effects arising from the contrasts of light and shadow were lost. Again, amid these manifold inconveniences, the operator was by no means sure of succeeding; after infinite precautions, causes unassignable or fortuitous gave him sometimes a tolerable result; at others, he obtained only an incomplete image, with here and there extensive blanks. In fine, when exposed to the solar rays, the grounds, upon which the images were impressed, if they did not become black, cracked and came off in small scales. By taking the opposite of each of these defects, an enumeration nearly complete will be obtained of the merits of the method discovered by M. Daguerre, after an immense number of minute, difficult and expensive experiments.

The feeblest rays impress the substance of the Daguerriotype. The effect is produced before the shadows have had time to change in any appreciable degree. The results are certain, by the operator's acting according to a few very simple directions. Finally, the images being once produced, the solar rays continued for years affect neither their purity, brightness, nor harmony.

Your commission have made the necessary dispositions for enabling all the members of the Chamber, during the day appointed for the discussion of the Bill, if they judge it proper, to verify the results of the Daguerriotype, and to form for themselves an opinion on the probable utility of such an apparatus. Upon examining several of the pictures to be submitted for your inspection all will consider the immense advantages which would have been derived, during the expedition to Egypt

for example, of a means of reproduction so exact and so rapid : all will be struck with this reflection, that if photography had been known in 1798, we should this day have possessed faithful representations of many valuable antiquities now, through the cupidity of the Arabs, and the vandalism of certain travelers, lost forever to the learned world.

To copy the millions and millions of hieroglyphics which entirely cover to the very exterior the great monuments at Thebes, Memphis, Carnac, etc., would require scores of years, and legions of artists. With the Daguerreotype, a single man would suffice to bring to a happy conclusion this vast labor. Arm the Egyptian Institute with two or three of Daguerre's instruments, and on several of the large engravings in that celebrated work, the fruit of our immortal expedition, vast assemblages of real hieroglyphics would replace fictitious or purely conventional characters. At the same time these designs shall incomparably surpass in fidelity, in truth of local color, the work of the ablest artists. Again, these photographic delineations having been subjected, during their formation, to the rules of geometry, shall enable us, with the aid of a few simple data, to ascertain the exact dimensions of the most elevated parts, and of the most inaccessible edifices.

These reminiscences, in which, if I am not strangely mistaken, neither the philosophers nor the artists, so zealous and so celebrated, who were attached to the army of the East, can detect the shadow of blame, will doubtless recall the thoughts to those labors now carrying on in our own land, under the superintendence of the Commission of Ancient Monuments. At a glance, each of you, Gentlemen, will perceive the important part which these photographic processes are destined hereafter to assume in this great national enterprise. Each will comprehend, also, that the new method will be distinguished by economy,—a species of merit, be it observed, rarely combined in the arts with perfection of result.

If, finally, it be asked, can art viewed in its own interests be expected to derive advancement from the examination, from the study of those forms designed by the most subtle, the most refined agency in nature—the rays of light?—M. Paul Delaroche shall reply to the question.

In a letter written at our request, this celebrated painter declares that the processes of M. Daguerre “carry to such perfection certain of the essential principles of art, that they must become subjects of study and observation, even to most accomplished artists.” What strikes him in the photographic designs is; that the finish “of inconceivable minuteness disturbs, in no respect, the repose of the masses, nor impairs, in any manner, the general effect.” “The correctness of the lines,” remarks M. Delaroche, in another place, “the precision of the forms in the designs of M. Daguerre, are as perfect as it is possible they can be, and yet, at the same time, we discover in them a broad and energetic manner, and a whole equally rich in tone as in effect. The painter will obtain by this process a quick method of making collections of studies which he could not otherwise procure without much time and labor, and in a style very far inferior, whatever might be his talents in other respects.” After combating by excellent arguments, the opinions of those who have imagined that photography will be injurious to our artists, and especially to our able engravers, M. Delaroche finishes his letter with this reflection : “In conclusion, the admirable discovery of M. Daguerre is an immense service already

rendered to art." We shall not commit the unpardonable fault of adding anything to such a testimony.

It will doubtless be remembered that among the inquiries proposed in the commencement of this report was the question : Are the photographic methods likely to become generally applicable ?

Without divulging what is and what ought to remain a secret until the passing of the Bill, we may state that the tablets upon which the light delineates the admirable designs of M. Daguerre are plated surfaces, that is to say, sheets of copper covered with a thin coating of silver. It had unquestionably been preferable for the convenience of travelers, and also on the score of economy, could paper have been employed. Paper impregnated with a solution of chloride or nitrate of silver was in fact the substance first selected by M. Daguerre. The want of sensibility, however, in this preparation, the confusion of images it produced, the uncertainty of the results, and the accidents which often marred the operation of transforming the lights into shadows, and the shadows into lights, could not fail to discourage so able an artist. Had he persisted in this first intention, his photographic designs might perhaps have figured in collections as the productions of a curious philosophical experiment, but assuredly they never would have occupied the attention of this House. Besides, if three or four francs, the price of a single plate such as M. Daguerre employs, appears too much, it is but just to add that the same plate is capable of receiving in succession a hundred different designs.

The remarkable success of M. Daguerre's actual method depends in part on the fact that he operates upon a coating of matter of extreme tenuity—on a veritable pellicle. It needs not then that we waste time upon the price of the ingredients of which the surface is composed. The price, from its smallness, would in reality be unassignable.

A single member only of the commission has seen the artist operate, and has operated himself. It will then be upon the personal responsibility of this Deputy that we can occupy the attention of the House with details of the Daguerriotype, viewed in reference to its simplicity of application.

The Daguerriotype, then, does not demand a single manipulation which is not perfectly easy to every person. It requires no knowledge of drawing, and does not depend on any manual dexterity. By observing a few simple directions, any one may succeed with the same certainty and perform as well as the author of the invention. The promptitude of the method is perhaps that which has most astonished the public. In reality ten or twelve minutes in the dull weather of winter are amply sufficient for taking a view of a monument, a section of a town or a landscape. In summer this time may be reduced one-half. Under the skies of the south not more than two or three minutes will be necessary.

But it is of importance to remark that these ten or twelve minutes in winter, these five or six minutes in summer these two or three minutes in southern regions, express merely the time during which the plate of metal is exposed to the lenticular image. To this space must be added the time of unpacking and adjusting the camera, the time spent in preparing the plate, and the few minutes necessary for the final operation of rendering the picture thus obtained insensible to the future action of light. Added together, all these

different stages of the process may extend the whole period employed to thirty minutes, or three-quarters of an hour. Those persons are deceived, then, who suppose that during a journey they may avail themselves of brief intervals while the carriage slowly mounts a hill, to take views of a country. They also are not less mistaken, who, struck by the curious results sometimes produced by the adhesion of the pages, or the pressure upon the engravings in very old books, have cherished dreams of reproducing and multiplying photographic designs by lithographic impressions. It is not in the moral world alone that the very perfection of certain qualities tends to defects; the maxim often finds its application in the world of art. To the perfect polish, the incalculable tenuity of the coating upon which M. Daguerre operates, are to be ascribed the finish, the grace, the harmony of these photographic designs; and to rub, to finger such designs, to subject them to the action of the press or roller, would cause their irreparable destruction. But who ever thought of forcibly pulling a ribbon of lace, or brushing the wing of a butterfly?

The academician who has for some months known the secret of the preparations upon which the beautiful designs submitted for our inspection are penciled, has not thought himself entitled to put to account M. Daguerre's honorable confidence. He has deemed it no more than proper delicacy, before entering upon the wide field of research opened to philosophers by the photographic processes, to wait until a national remuneration shall have placed in the hands of all equal means of investigation. We can do little more, therefore, in speaking of the scientific utility of our countryman's discovery, than proceed upon conjecture. The facts as to the rest are clear and palpable, removing all fears of our being deceived in their consequences.

The preparation employed by M. Daguerre is a re-agent much more sensible to the action of light than any other hitherto in use. Never have the rays of the moon, we do not say in a natural state, but even when concentrated by the most powerful lens, or in the focus of the largest reflector, been capable of producing any perceptible physical effect. The plated discs prepared by M. Daguerre, on the contrary, receive impressions from the action of the lunar rays and the succeeding operations to such an extent as permits the hope that we shall be in a situation to make photographic charts of our satellite. In other words, in a few minutes we shall be able to execute one of the longest, most tedious, and most delicate operations of astronomy.

An important branch of the sciences of experiment and calculation,—that which treats of the intensity of light, or photometry, has hitherto made little progress. The philosopher approaches pretty nearly to the determination of the comparative intensities of two luminous sources when near each other, and simultaneously visible; but the means of ascertaining this relation are imperfect when the condition of simultaneity does not exist—when the question regards a light visible at present, and one which will not be seen till after the first has disappeared.

The artificial lights, to which as standards of comparison the observer in the case in question is reduced to have recourse, seldom maintain the requisite permanence and steadiness; nor, more particularly as respects the stars, do our artificial lights possess the necessary whiteness. From these causes there exist very great discrepancies between the determinations of the comparative intensities of the sun and

moon, or of the sun and stars, as given by men of equal scientific acquirements. Thence also the sublime inferences deducible from these latter comparisons, in relation to the humble place occupied by our luminary amid the millions of suns with which our firmament is studded, are still veiled in reserve, even in the works of those authors whose least fault is timidity.

Let us not hesitate, then, to announce the fact; the re-agents discovered by M. Daguerre will speed onward the progress of those sciences which confer the highest honor on the human mind. By their aid the philosopher will be enabled henceforth to proceed on the principle of absolute intensities; he will compare lights by their effects. If he find it useful, the same tablet will present him with the impression of the dazzling rays of the sun, and with the pencilings of rays three hundred thousand times fainter than those of the moon—the rays of the stars. These different imprints he will equalize, either by reducing the stronger lights, through means of excellent methods, the results of recent discoveries, the explanation of which would be here misplaced,—or by allowing the brightest rays to operate, say, only for a second, and continuing according to circumstances the action of the others for half an hour. In short, when observers apply a new instrument to the study of nature, what they expected from it has always proved little indeed compared with the series of discoveries which the instrument originated. In this instance it is upon the *unforeseen* that we are especially to reckon. Does this sentiment appear paradoxical? Some references will demonstrate its justness.

Some children casually attached two glass lenses of different focus to the opposite extremities of a tube. They thus produced an instrument which enlarged distant objects, and represented them as if near at hand. Observers of more skill applied it with the sole—the modest hope—of seeing the stars a little better—stars known from the remotest antiquity, but which till then men had been able to study very imperfectly. Scarcely, however, is this chance gift turned toward the firmament than myriads of new worlds are discovered. Searching into the constitution of the six planets known to the ancients, these observers find it to be analogous to the earth's—by mountains whose altitude they measure—by atmospheres whose vicissitudes they trace,—by the phenomena of the melting and renewing of polar snows, similar to those of the terrestrial poles,—by rotatory movements corresponding to those which here below regulate the alternations of day and night. Directed to Saturn, the tube of the children of the Middleburgh spectacle-maker disclosed there a phenomenon the strangeness of which exceeded whatever the most enthusiastic imaginings had been able to realize.

We mean that ring—or, if the expression be better—that bridge without supports, 71,000 leagues in span, and 11,000 leagues in breadth, which environs on every side the globe of the planet, without approaching it in any part nearer than 9,000 leagues. Had any one foreseen that, applied to the observation of Jupiter's four moons, this tube would enable us to detect the rays of light in their speed of 80,000 leagues per second,—that attached to graduated instruments it would serve to demonstrate the existence of no stars whose light comes to us in less than three years—that, in short, following out with its assistance certain observations, certain analogies we should have attained within immense probability,—the conclusion that the ray by which at any given instant we descry certain nebulosities has parted on its journey from these

regions several millions of years before,—in other terms, that these nebulosities from the successive propagation of light would be visible from the earth several millions of years after their entire annihilation?

The telescope for near subjects—the *microscope*—would furnish subjects of remarkable analogies, for nature is not less admirable in her minuteness than in her immensity. Applied at first to the observation of certain insects whose forms naturalists wished merely to enlarge in order more correctly to reproduce them by the graving tool, the microscope unveiled, subsequently and unexpectedly, in air, in water, in all liquids, those animálcules, those infusoriæ, those strange reproductions in which we may one day hope to grasp the first principles of a rational explanation of the phenomena of life. Recently directed to the minute fragments of different stones hitherto ranked among the hardest, the most compact of which the crust of our globe is composed, the microscope has disclosed to the eyes of astonished observers the fact that these stones have lived—that they are a compost formed of millions of millions of microscopic animals kneaded together.

This digression, it will be recollected, was intended to undeceive those who would wrongfully shut up the scientific applications of M. Daguerre's processes within the circuit of what is actually known, the outline of which we have traced. But we hope differently—and do not facts already justify our anticipations? We might speak, for example, of certain ideas which we entertain of methods of rapid investigation which topography might borrow from photographic principles. I shall attain my object more directly, however, by introducing here a curious remark related to us yesterday by M. Daguerre. According to his observations, the hours of the morning and those of the evening equally distant from mid-day, and consequently corresponding to the same altitudes of the sun above the horizon, are not alike favorable to the production of photographic images. For example, at all seasons of the year, and under circumstances of atmospherical influence in appearance the same, images are formed with more rapidity at eleven in the morning than at five in the afternoon, at eight o'clock than at four, at nine than at three. Let us suppose this result verified, and the meteorologist obtain an additional principle, one element more than he possessed for the construction of his tables. Thus, to former observations on the state of the thermometer, barometer, hygrometer, and transparency of the atmosphere, there remains to be added an element not detected by the instrument previously in use; an account must be taken of a particular absorption, which cannot be without influence upon many other phenomena, on those even connected with physiology and medicine.

Gentlemen; we have thus endeavored to collect into one view whatever the discovery of M. Daguerre presents that is most interesting under the four heads of Novelty, Utility to the Arts, Rapidity of Execution, and the valuable resources which it offers to science; we have earnestly labored to make you participate in our convictions, because these are lively and sincere,—because we have examined all, studied all with the sacred faithfulness imposed upon us by your suffrages; because, had it been possible to misconceive the importance of the Daguerriotype and the place it is destined to hold in the estimation of men, all our doubts would have ceased on perceiving the eagerness of foreign nations to lay hold of an erroneous date, of a doubtful fact, of the slightest pretext, in order to stir up questions of priority for the

purpose of adding to their own crown of discovery the beautiful ornament which the photographic inventions will ever form. Let us not forget to proclaim that all discussion on this point is now at an end, and must cease, less from the claims to authentic priority produced by MM. Niepce and Daguerre than by reason of the incredible perfection of the results at which M. Daguerre has arrived.

Were it necessary, we could easily produce here the evidence of the most eminent men in England and Germany, before whose praise all that we have said in favor of our countrymen would fade as into nothing. This discovery France has adopted; from the first moment she has cherished a pride in liberally bestowing it a gift to the whole world. Still we were far from being surprised at a sentiment almost generally entertained by the public, arising from a passage in the first exposition laid before this House, which, being misapprehended, seemed to imply that the Administration had trafficked with the inventor—that the pecuniary conditions of the contract now proposed for your sanction were the result of a chaffering. Gentlemen, it is of importance to place these facts in their proper light.

The members of this Chamber to whom the Ministry gave full powers never bargained with M. Daguerre. Their communications had solely for object to determine whether the recompense so justly due to the accomplished artist should be a pension or a sum paid at once. From the first, M. Daguerre perceived that the payment of a stipulated sum might give to the transaction the base character of a sale. The case was different with a pension. By a pension you recompense the warrior who has been wounded on the field, and the magistrate who has grown gray on the Bench; it is thus that you honor the families of Cuvier—of Jussieu—of Champollion. Reflections like these could not fail to present themselves to a man of his exalted character, and M. Daguerre decided on a pension. All other arrangements were left to the Minister for the Home Department. M. Daguerre himself fixed the amount at 8,000 *frs.*, to be divided equally between himself and his partner, M. Niepce, jr. The proportion payable to M. Daguerre has since been raised to 6,000 *frs.* (making 10,000 in all), both on account of the condition specially imposed upon that artist of publishing the secret of painting and illuminating the Dioramic views, and making known all future improvements with which he may enrich his photographic methods. The importance of this latter engagement will certainly not appear doubtful to any person when we inform you, for instance, that a very slight advance beyond his present progress will enable M. Daguerre to apply his processes to executing portraits from life. Far from fearing that M. Daguerre will leave to other experimenters the care of adding to his actual success, we have rather sought how to moderate his ardour. Such, and we frankly confess it, was the motive which induced us to desire that you would declare the pension *unattachable* and *unalienable*. This amendment, however, we now perceive to be unnecessary, an existing law recognizing the principle.

Your commission have now only to recommend unanimously that you adopt simply, and without alteration, the bill proposed by the Government.

## RATIONAL DEVELOPMENT.

ALTHOUGH the work made by the average photographer has improved since dry plates have been introduced, yet a vast amount of bad work is yet to be seen, much of it made by men who were leaders in the wet plate days. Yet it must be admitted that pictures are now made that could not be equaled with wet plates. I attribute the success and failure in dry plate work to the knowledge of one class and the ignorance of the other concerning development and the use of developers. Not half of the photographers and operators know the use of the various ingredients used in making a developer. This assertion has been repeatedly made by men who come in contact with the fraternity all over the country. As a rule it is safe to follow the instructions given with whichever plates are used, although it is not absolutely necessary to stick to this as an iron-clad rule. The soda formulas just now are in the majority, and seem to give more general satisfaction than any other. The tendency just now seems to be to secure a developer that will develop an image on a dry plate in the same time that was necessary with a wet plate. This has brought out the process vender, who reaps many a fifty-dollar lump for his hydroquinone formula that will do this. The work done by such a rapid developer is as a rule hard and blocky, and does not possess the delicate shadings, gradations and half-tones that are obtained by use of a mild, gentle developer. I think this intensely rapid development a mistake, and only fit to be used on black-and-white subjects, that need contrasts and density. I admit it was some time before I became convinced of the merits of very slow development with a fresh, weak solution, but I have seen such fine results in other processes as well as in gelatine plates that I am now convinced that for fine, delicate work, in which there is half-tone detail in the shadows as well as in the high lights, without flatness, a mild developer will always give the best results, unless poor plates are used. My favorite formula is:

Make a solution of sulphite of soda to test 60 by the hydrometer, and a solution of sal-soda to test 22. Take

|                          |   |                     |
|--------------------------|---|---------------------|
| 4 oz. sulphite           | } | For alkaline stock. |
| 4 oz. sal-soda           |   |                     |
| Pyro, 1 oz.              | } | For pyro stock.     |
| Water, 12 oz.            |   |                     |
| Oxalic acid, 10 grs.     |   |                     |
| Alkaline solution, 8 oz. | } | For development.    |
| Pyro, 8 drams.           |   |                     |

This starts the image within 30 seconds when exposure has been right, and keeps adding to the density so gradually that any changes deemed necessary in the pyro, acid or alkali can readily be made without fear of the plate being lost.

I believe that by following a slow method of development fewer plates are wasted and a better quality is secured, and the work of an establishment becomes more regular. I do not rely much on formulæ, believing that unless the proportions are badly exaggerated, good results will follow, and that the operator should study the action of the developer just as he did his collodion and bath, and not rely too closely on the formula, but more on observation, study, and experience. There is a tendency

to expect everything from the plates. Of course all plates are not good; some, according to their manner of making, act entirely differently from those of a previous batch, as a rule, the plates on the market now show a very high quality and give fine results. Bad plates are the exception, and I can safely say that I have not had two dozen in my hands during the past year. I think it will pay the operator to take a little more time and get the best results. The employment of a mild developer is especially recommended in using a slower brand of plate, such as Carbutt's A and B, as density can readily be obtained in either of these, and pyro should be sparingly used. For copying line work and drawings and for general landscape they hold a place entirely their own.

W. H. RAU.

### ACID IN THE PYRO DEVELOPER.

*From Photo Correspondenz.*

I HAVE for some time been engaged in investigating the action of acid upon the alkaline pyro developer.

The results obtained by the addition of the acid are so satisfactory that, despite the favor obtained by the new hydroquinone developer, I believe that the pyro will still remain triumphant as the developer *par excellence*.

The addition of the sulphuric acid to the pyro solution is generally had recourse to, although other acids have been proposed, many photographers attributing a favorable influence to the action of formic acid. I have investigated the action of the acetic, citric, oxalic, glacial, phosphoric, sulphuric, formic and tartaric acids.

The object of the addition of the acid is to neutralize the alkaline reaction of the sodium sulphite, and so prevent or retard the rapid discoloration of the pyro solution, which, especially in alkaline solution, rapidly absorbs oxygen.

Even the chemically pure sodium sulphite possesses an alkaline reaction, whilst the commercial variety is often largely adulterated with common soda, and hence considerable acid is necessary to effect a neutralization, so as to leave unchanged in color blue or red litmus paper.

In the normal recipe for pyro developer

|                            |             |
|----------------------------|-------------|
| Sodium sulphite, . . . . . | 100 gr.     |
| Sulphuric acid, . . . . .  | 5-10 drops. |

is required for neutralization.

I found that 150 drops of acid were required to neutralize 100 grains commercial sodium sulphite. With another variety of sulphite the following amounts of acid were found necessary to neutralize 27 grains.

|                                   |         |
|-----------------------------------|---------|
| Tartaric acid . . . . .           | 1.5 gr. |
| Citric " . . . . .                | 1.5 gr. |
| Oxalic " . . . . .                | 1 gr.   |
| Glacial phosphoric acid . . . . . | 3½ gr.  |
| Sulphuric (1.3) " . . . . .       | 2 cm.   |
| Acetic (1.2) " . . . . .          | 2 cm.   |
| Formic " . . . . .                | 3.2 cm. |

The acid in the sulphite solution acts as a preserver. I have specimens from November of last year which are still colorless. I employed citric acid.

The color of the negative is gray, obtained from the acid fixing bath. If yellowness result from the neutral fixing bath, it may be removed by acid sulphite solution, or with solution of bi-sulphite of calcium.

The following formula has proved very effectual, both for pyro soda, and pyro potash developer. It conserves the pyro, gives fine, rich gradations, with plates of high degree of sensitiveness, and perfect clearness.

200 g. (about  $6\frac{1}{2}$  oz.) sodium sulphite are dissolved in hot water, and the quantity brought to one litre (35 ozs.) solution.

Take sodium sulph. solution . . . . .  $5\frac{1}{4}$  ozs.

" citric acid solution . . . . . 34 minims.

Pyrogallic acid . . . . . 3 g. (47 grains.)

For development for cabinet plate take

Pyro solution . . . . . 20 ccm.  $5\frac{1}{3}$  dr.

Soda sol. (1.5) . . . . .  $5\frac{1}{3}$  dr.

Potash sol. (1.10) . . . . .  $5\frac{1}{3}$  dr.

Water . . . . .  $5\frac{1}{3}$  dr.

The potash developer works more rapidly and covers stronger.

ALEXANDER LAINER.



## EASTWARD HO!

THE wisdom of the decision of the Photographic Association of America to return the Convention to the East is becoming more and more manifest.

Indications are so abundant that we venture to predict that the Boston Meeting will be a success. Never before, in our recollection, has so much interest been taken, so far ahead of the appointed time of assembly, not only by exhibitors of photographic work, and by manufacturers, but also by members, and even by people who have no direct connection with the profession. There is a belief, which has much to strengthen it, that it will pay to attend this convention.

We are already assured of a large attendance from the Eastern and Middle States, and anticipate from information received from western travelers that there will be a rich influx of members from beyond the Mississippi.

Boston itself should have attraction enough, but when one thinks of the genial nature and hospitality of the eastern people, and of the royal entertainment in preparation, the end of the beam of the balance of decision which contains the paltry consideration of expense goes sky high, and we cry, "Eastward Ho!"



It will be of interest to our readers to have an idea of the character of the grand award. Below we give a cut kindly sent us by Mr. McMichael. It is called the Roman Wrestlers, and it might be named Hercules and Antæus. All will remember the fable which tells us that Hercules found it impossible to overcome Antæus so long as he suffered him to remain in contact with earth, his mother, from whom he obtained constant help, so, raising him high in the air, away from maternal support, he easily subdued him. We don't want to moralize, but here is a temptation; the group might serve as a mentor to the photographer to overcome the depressing influence of bad trade by "*raising*" his prices.

This grand award is to be presented for the best collection of photographs illustrating Longfellow's poem *Evangeline*. It is of bronze, about three feet in height, and was exhibited at the Paris Salon, where it was greatly admired, and gained "honorable mention."

This original was imported free of duty, and not even European copies can be now had of it, unless at a very much enhanced price.

For the medals, a design has been secured which is entirely new and unique. On the ob-

verse side which will be a fine head of Daguerre in bold relief, and on the reverse figures representative of American Photography. The die is to cost \$250, and the medals are to be of gold, 24 carats fine, and finished in dead gold. They will be placed in the shape of a badge, with a bar of gold at the top for an inscription of the winner's name.



Members' badges are to be of solid silver, oxidized, embellished with head of Daguerre, and may be worn suspended from coat lapel, as common with other badges. They alone will be intrinsically worth the admission fee, while as souvenirs of the "Semi-Centennial of Photography," only possessed by members of the Association, they will be permanently invaluable.

#### THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, July 3d, 1889, with Mr. Samuel Sartain in the chair.

The Secretary announced the death, on June 20th, of Mr. Joseph J. Fox, a member of the Society, and late editor of *Science of Photography*.

The Committee on Lantern Slides presented the following report:

"Your Committee on Lantern Slides respectfully report that a detailed statement of the affairs of the American Lantern Slide Interchange has been received from the manager, Mr. George Bullock, of Cincinnati. This includes an account of the expenses of the Interchange, and a report of the number of slides contributed by the nine societies to the series of the season just passed. It is probable that the Executive Committee will meet during the present month to make arrangements for the current year.

"Our report upon slides shown at the Conversational Meetings of the Society, covers two months. At the May meeting the slides of the Cincinnati Camera Club were shown. Mr. Rau also exhibited some fine views of the naval parade during the centennial celebration in New York of the inauguration of the Federal government and of the first president. Mr. Dillon showed several figure studies and landscapes, which

were much enjoyed. Mr. Redfield, on behalf of Mr. Charles R. Pancoast, exhibited a choice collection of slides made by him on gelatine dry-plates.

"At the June meeting Mr. Rau showed about forty slides from negatives of the Johnstown disaster, secured soon after the event. They were a timely and highly interesting record of the physical effects of the great flood. Mr. Fellows also showed some slides of the same subject from negatives made by Mr. Dillon. He also threw upon the screen a number of foreign views and flash-light studies. Mr. Wood had several of his admirable figure studies."

The committee on membership reported the election of the following active members: John C. Breuker, John P. O'Brien, Washington Van Dusen, John F. Simons, Dr. Henry Weston, Leib Harrison Dulles, John D. Bliss.

Mr. Sartain reported for the Committee on Excursions that two "Day" excursions had been given, one on June 15th to Chadd's Ford and along the Brandywine, and one on the following Saturday on Chester Creek, from Cheyney Station to Darlington, both of which were fairly attended.

Mr. J. M. Walmsley exhibited a negative made on the New Eastman Flexible Film. In reply to a question as to the use of the films in cut sheets, he said that difficulty would be found in using them in that way, and he thought the manufacturers had announced that the films should only be used in continuous sheets in the roll-holders. Adjourned.

EDMUND STIRLING, *Secretary pro tem.*

#### CINCINNATI CAMERA CLUB.

THE Club took their annual outing May 30th, and, notwithstanding a heavy rain, about eighty attended. It was a poor photographic day, but those who went were amply repaid by the social enjoyment of the occasion.

Our first meeting in June was well attended. Mr. Bullock occupied the chair. It was suggested that the Club take a number of outings during the summer months, to be conducted by volunteer members. This met with great favor, and immediately the excursions were provided for. Mr. Johnson showed a circular level which was of great interest, and was pronounced of advantage to the worker, both for its accuracy and convenience. Mr. Barton read a paper on composition, with charcoal illustrations. On June 17th the second meeting was called to order, with Vice-President Fisher in the chair. A question of having one meeting instead of two for the months of July and August was brought up and decided that as the times for meetings were fixed by a constitutional provision, no action should be taken. Prints from negatives made at the outing were shown, and it is remarkable, bad as the day was, many choice pictures were made, notably those of Messrs. Johnson, Collier, Gilbert, Bartlett, and others. Mr. Howard Kingsbury, of the Philadelphia Society, entertained the Club with a paper on "Luray Cave and the Theory of its Formation," with lantern illustrations. Mr. Kingsbury showed himself to be thoroughly competent to handle the subject, both descriptively and illustratively. All the pictures were made by the use of the electric light, and the fact that some required twelve hours' exposure will give some idea of the time and patience exercised to secure them. A vote of thanks was tendered by the Club, coupled with an invitation to meet with us again. The Club adjourned early, and spent a social hour before separating.

H. C. FITHIAN, *Corresponding Secretary.*

## LITERARY AND BUSINESS NOTICES.

DER KOHLE-DRUCK UND DESSEN ANWENDUNG BEIM VERGRÖßERUNGS-VERFAHREN. Von Dr. Paul E. Liesegang.

This is a most excellent treatise upon a branch of photography unfortunately but little practised in this country, but known and appreciated by European photographers, especially the Germans.

Dr. Liesegang's work on Carbon Printing has special reference to the enlargement process, but it treats also of the production of positives upon glass, metal, etc.; transparencies for the lantern and for the window; in fact, of all the various applications.

The book is concisely written, clear and explicit in the explanations, and everywhere bears evidence of the practical information of one who knows whereof he speaks.

DER LICHT-DRUCK UND DIE PHOTOLITHOGRAPHIE. Von Dr. Jul. Schnauss.

This book bears evidence of its worth on its very face, inasmuch as the present edition is the fourth.

It is an eminently practical book upon the important topics of Collotype Printing and Photolithography.

Dr. Schnauss undertakes the treatment of the subject in the characteristic German exhaustive method, but conveys his information in the clear, straightforward manner of an English writer. It is a most important subject whereof he treats, and one in which the literature which is worth anything is remarkably scarce. There are scissor and paste-pot books on the subject, but here we have a practical book written by a practical man, and written, too, so that any one may comprehend all the processes.

We are sure that an English translation of both the above-named books would meet with many readers on both sides of the sea.

Both books are published by Ed. Liesegang, of Düsseldorf, who is noted for his excellent photographic publications.

A DICTIONARY OF PHOTOGRAPHY. By E. J. Wall. Scovill-Adams Co., New York.

This work is a republication of the series of papers contributed to the pages of the *Amateur Photographer*, of London.

It consists of short descriptions and concise explanations of all the topics connected with photography.

The author calls it a complete encyclopædia. Complete it is, but hardly entitled to be named an encyclopædia, as the contents do not furnish that detailed information which one demands from an exhaustive work. However, as a dictionary it is excellent, and will be helpful to the practical worker, and of considerable value both to the professional and the amateur.

*The Optical Magic Lantern Journal*: Vol I, No. 1, is intended to fill a place in the literature of applied photography.

With the exception of the *Lanterna Magica*, published in German by Liesegang, we are not acquainted with any periodical devoted to this most delightful branch. At least there are on English publications. It is the intention of the publishers, Taylor Bros., Dorset Works, Salisbury Square, London, to supply the latest information regarding the numerous phases of lantern topics, and to chronicle all the discoveries and experiments connected with the profession.

"THE KNACK" is the title of a small pamphlet by Franklin Putnam, N. Y., who is also its publisher. The style in which the instruction is conveyed is pleasant and chatty, and the advice is generally good, although we do not endorse all that is said. Still, the amateur, by following the instructions, will avoid many a pitfall in practice.

WE have also received two numbers of the *Children's Friend*, an illustrated magazine published in England, which have been sent us mainly for the excellent reproductions of two of Mr. William Adcock's charming studies of child life.

The pictures are from direct photographs, the one entitled "The Injured Foot;" the other, "The Top Spinner."

Both these pictures are simple themes, simply rendered, but they are full of feeling, and in perfect harmony with the mode of expression, and have evidently sprung spontaneously from the artist's own conception of what is pleasing.

Mr. Adcock's work is always characterized by touches of sympathy for what he depicts. This is no doubt the secret of his success as an artist with the camera.

MR. JOHN H. BRADWAY, of Woodbury, N. J., following in the line of Mr. Sachse's experiments to photograph the growth of flowers by the aid of Blitz-Pulver light, recently produced a series of beautiful negatives,  $6\frac{1}{2}$  by  $8\frac{1}{2}$ , of a night-blooming cactus.

The series is not only interesting scientifically, but also artistically, for the beautiful delineation of the flower forms.

WE have received the first number of the *American Amateur Photographer*, edited by F. C. Beach & W. H. Burbank. It is a monthly magazine devoted especially to the interests of the Amateur Photographer.

This initial number is most excellent containing a number of interesting papers, editorial notes, and intelligence from foreign and home societies.

Both Mr. Beach and Dr. Burbank are eminently qualified to conduct an enterprise of this kind. The magazine is enlivened with illustrations.

THE Prize Tour number of the London *Amateur Photographer*, edited by Charles Hastings, is a delightful collection of reading and illustrations.

The reproductions of the photographs are not of a character as good as many others which have been issued by the *Amateur Photographer*, but quite sufficient to show the leading features of the work. The falling off in the prints is more than atoned for by the interesting accounts of the tours, which it seems were also written in competition.

THE AIR BRUSH MANUFACTURING CO.'S PRIZES.—The Air Brush Manufacturing Company will offer the following prizes at the Convention of the Photographers' Association of America, to be held in Boston, August 6th to 10th, 1889:

1. One complete Air Brush will be given for the best free-hand portrait done with the Air Brush. This may be in black and white or water colors.

2. One complete Air Brush will be given for the best water-color portrait, *over any print*, finished with the Air Brush.

3. One complete Air Brush will be given for the best portrait in black and white, *over any print*, finished with the Air Brush.

For all further particulars address Air Brush Manufacturing Company, Rockford, Ill.

EASTMAN'S GRAND PRIZE FOR BROMIDES.—The Eastman Dry Plate and Film Company offers a beautiful *solid silver cup*, as a prize for the best collection of prints on *Eastman's permanent bromide paper*.

The conditions of the competition are as follows:

1st. The prints shall not be less than six in number, and may be of any size.

2d. The prints shall not be framed, and shall be untouched, except ordinary spotting.

3d. The prints may be either contacts or enlargements.

4th. The award will be made for the collection showing the most skill and judgment in the manipulation of the paper.

The exhibits are to be subject to the regular Association rules. Applications for space must be made to the Secretary, Mr. O. P. Scott, Chicago, Ill.

Notice of intention to compete must be sent before August 1st to the Eastman Dry Plate and Film Company, Rochester, N. Y.

WE have received an interesting letter from Mr. Wilfrid French, of Boston, who has just returned from a delightful sojourn in Europe.

Mr. French speaks of the freedom from national prejudices of the English photographers, who are alive to the value of good work and first-class apparatus, without consideration whence it originates.

Mr. French was rejoiced to see, amongst other evidences of their cosmopolitan spirit, an appreciation of the merits of the Euryscope lens of the Voigtlander construction.

Mr. French lays special stress upon the fact that the high appreciation of the lenses is largely due to the properties secured by the quality of the glass used in the manufacture, a special kind, manufactured by Schrot, of Yena, being employed.

Mr. French tells us of a new wonderful wide angle Euryscope lens for groups, which we are anxious to see, as, from the description, it eclipses all other lenses of the kind. We shall have the opportunity at Boston in August.

ANTHONY'S PRIZES FOR BROMIDES.—E. & H. T. Anthony & Co. offer for competition at the Boston Convention of the Photographic Association of America, August 6 to 10, 1889, the following prizes for the users of Anthony's Reliable Bromide Paper:

For the best collection of Plain Enlargements and Contacts, \$100.

For the best collection of Crayon Worked Enlargements, \$50.

The conditions for competition will be as follows:

*First*—For the \$100 prize the prints must be at least six in number, and must embrace both Contacts and Enlargements.

*Second*—The awards will be made for the best collection as a whole.

*Third*—Competitors must forward their exhibits, prepaid, so that they will reach Boston by the first of August.

Prints may be framed or not, at the option of the exhibitor.

Each package must contain a card stating the name and address of the exhibitor and his private mark, a letter being sent also with same private mark, but on no account must any other than the private mark appear on the pictures themselves. Instruction as to the class in which they are entered must also be given, and the pictures numbered on the back to correspond with the number given in the class entry. Judgment will be given to the distinguishing mark, but the awards will be announced with both mark and name.

Be sure and ship your exhibits in good time, as those arriving late will not be apt to get a good place, and will run the risk of not getting there in time to be entered for competition.

All exhibits will be subject to the Association rules. Applications for space must be sent to the Secretary of the Association, Mr. O. P. Scott, 2220 Indiana Avenue, Chicago, Ill.

E. & H. T. ANTHONY & CO.

*Sun and Shade* for May contains forty views of the Centennial Celebration, forming a valuable souvenir of the event.

ON the 20th inst died Joseph J. Fox, after a long sickness. Mr. Fox was the founder and managing editor of *Science of Photography*, which was recently discontinued on account of his continued ill health.

Mr. Fox was quite a young man, possessed of a remarkable degree of energy and perseverance, and we have no doubt that his journalistic enterprise would have been a success had his life been spared.

The cause of his death was consumption.

THE editor of our esteemed contemporary, *Wilson's Photographic Magazine*, intends to organize a plan for the relief of the Johnstown photographers, who have lost everything by the terrible calamity. Mr. Wilson commends their case to the fraternity for consideration, but in the meantime has volunteered to forward any funds that may be sent to him. Contributions of apparatus, backgrounds, lenses, etc., would be quite acceptable, as many have lost everything they possessed.

We hope this appeal will meet with a hearty response.

WE have received a number of photographic views descriptive of the Johnstown disaster, which were secured immediately after the terrible floods. These photographs, which are most excellent in technical qualities, vividly depict the scenes of destruction and horror in a most realistic manner. The whole series includes over one hundred pictures, and comprises every phase of the ruin and devastation from the broken dam to Johnstown City.

The lantern slides from this series are eagerly sought by lecturers, inasmuch as they furnish the most varied and graphic descriptions of the disaster.

SAMPLES of Ramsperger's Safety Flash Ignitor and the Aladdin Dark-Room Lamps have been sent us by the manufacturers, Messrs. H. G. Ramsperger & Co., 180 Pear Street, New York.

The Flash Ignitor is simple in construction, and not liable to get out of order. A piece of punk is so placed upon a little stage that when ignited it may be made to spring up through a little trap, and so ignite a small wad of gun-cotton which is in contact with the flash powder above it in a little pan.

A slight pressure on a pneumatic bulb is all that is needed to do the deed, so that it is possible to watch our sitters until the pleasing expression is secured, and then pop off the flash without their knowledge.

The Aladdin Lamps are intended to give the maximum amount of non-actinic light for the

dark-room without endangering the safety of the plate.

The properties of the yellow sodium flames are called into service, and we have no doubt of the great utility of the lamp, to say nothing of the ease and comfort afforded the eyes, in being able to dispense with the ruby light.

The lamp is in two forms, for table and for attaching to the wall by means of a bracket.

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THE magnesium flash-light is quite popular with the professional photographers of Philadelphia. Quite a business is done in photographing interiors, with or without groups. Some of the work is most beautiful, being so different from the formal arrangement of figures with which photographers formerly were satisfied, and with which the public had to be. Now the lifelike and homelike representations exhibited in the show-windows are most attractive, and are sure of the applause of the public.

Amongst the leading firms who advertise to take pictures at home are W. H. Rau, Gilbert & Bacon, Rothergatter & Dillon, Husted & Co., Taylor & Fugate, Roberts & Fellows, and True-scott.

THE third series, Vol. 7, No. 2, of the proceedings of the Canadian Institute, contains a number of important and interesting papers on ethnological, linguistic and geologic subjects. It is published by the Copp-Clark Co., Toronto.

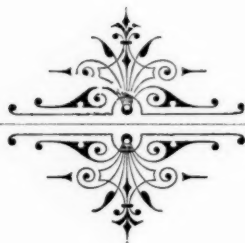
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MR. J. F. RYDER, of Cleveland, Ohio; is now associated with Mr. J. M. Appleton, formerly of Dayton, Ohio, the name of the firm being J. F. Ryder and Appleton.

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THE celluloid films, or rather, as they are called, the flexible films, are very popular just now, when the grasshopper is even a burden. A legion of them scarcely weighs as much as a half dozen plates, and as they can be so easily exposed and developed, needing no stripping or transferring, they will undoubtedly become the fashion for summer photography.

The Blair Camera Co. has just put upon the market a very simple, cheap, and perfect holder for carrying these films. Its construction is so simple that one wonders why nobody had thought of it before. It keeps the film flat, and so insures evenness of exposure and accurate focus.



**JULY BARGAIN LIST.****Accessories:**

|   |       |
|---|-------|
| 1—9x11 Glass Bath and Dipper . . . . .                                      | 1 80  |
| 1—Packard Rock . . . . .  | 3 00  |
| 1—8x11 Exterior Background, light right . . . . .                           | 8 00  |
| 1—Card size Burnisher . . . . .   | 3 00  |
| 1—Cameo Press . . . . .   | 1 00  |
| 1—Pharaoh Chair . . . . .   | 5 00  |
| 1—Rustic Wood Chair . . . . .   | 5 00  |
| 1 copy Photo Mosaics for 1881, in cloth . . . . .                           | 50    |
| 1 copy Photo Colorists' Guide, . . . . .                                    | 75    |
| 1 copy About Photography and Photographers . . . . .                        | 50    |
| British Journal Almanacs for 1889, reduced to . . . . .                     | 40    |
| 1—15-in Entreklin Rotary Burnisher . . . . .                                | 17 00 |
| 1—15-in Entreklin Eureka Burnisher . . . . .                                | 15 00 |
| 1—Lever Camera Stand for 14x17 Camera . . . . .                             | 10 00 |
| 1—Fuming Box . . . . .  | 4 00  |
| 1—15x18 Deep Porcelain Tray . . . . .                                       | 3 00  |
| 1—15x18 Japan Tray . . . . .  | 50    |
| 1—Iron Centre Camera Stand, . . . . .                                       | 3 00  |
| 1—14-in Eureka Burnisher . . . . .  | 16 00 |
| 1—Seavey Swiss Cottage Accessory . . . . .                                  | 12 00 |
| 1—8x10 Exterior Ground, good condition, . . . . .                           | 10 00 |
| 2—Spencer Head-rests . . . . .  | 11 00 |
| British Journal Almanacs for 1878 . . . . .                                 | 20    |
| Photo Mosaics for 1883, . . . . .   | 20    |
| 1—8x10 Plain painted ground . . . . .                                       | 3 00  |
| 1—8x10 Osborne's interior background, new, light left . . . . .             | 20 00 |
| 1—4x8 Osborne's side slip . . . . .   | 7 50  |
| Pearl leads, the best retouching point in the market, each . . . . .        | 15    |
| 5x8 Woodbury Dry Plates PER DOZ. . . . .                                    | 80    |
| 4¼x6½ " . . . . .   | 65    |
| 6½x8½ Triumph " . . . . .   | 85    |
| 5x7 " " . . . . .   | 55    |
| 4¼x6½ " " . . . . .   | 45    |
| 5x8 Neidhardt " . . . . .   | 65    |
| 4x5 Bridle " . . . . .  | 35    |
| 1—8x10 Hough's Exterior ground, good as new, light left of sitter . . . . . | 9 00  |
| 1—8x10 Hough's Exterior ground, light right . . . . .                       | 8 00  |
| 1—Hough's Oak Stump . . . . .   | 7 50  |
| 1—Osborne's No. 71 Rock Accessory . . . . .                                 | 9 00  |

|   |       |
|---|-------|
| 1—Osborne's Bridge Accessory . . . . .                  | 8 00  |
| 1—Osborne's Gate Combination Accessory, new . . . . .   | 18 00 |
| 1—5x8 Negative Box . . . . .                            | 50    |
| 3—3¼x4¼ Printing Frames, each . . . . .                 | 20    |
| 1—9x11 Glass Bath . . . . .                             | 1 75  |
| 6—6½x8½ Printing Frames, @ . . . . .                    | 40    |
| 1—8x10 Negative Box, . . . . .                          | 75    |
| 1—6½x8½ " " . . . . .                                   | 50    |
| 1—15 inch Smith & Pattison, Quadrex Enameler, . . . . . | 25 00 |

**Camera Boxes:**

|   |       |
|---|-------|
| 1—11x14 Copying Camera and Stand . . . . .  | 25 00 |
| 1—Gray's Vist Camera . . . . .  | 9 00  |
| 1—Woodward Solar Camera, 7-in. condensing lens and ½ size Voigtlander lens . . . . .  | 25 00 |
| 1—½ size Ferro. Camera, 4 ½ tubes and stand . . . . .   | 10 00 |
| 1—11x14 O.I.C. Copying Camera, good condition . . . . .   | 25 00 |
| 1—4x5 Flammang revolving back Camera, lens and tripod, new; reduced from \$37 to . . . . .  | 25 00 |
| 1—17x20 American Optical Co.'s Double Swing Portrait Camera, Bonanza Holder, good as new . . . . .  | 75 00 |
| 1—5x8 Blair View Camera, single swing . . . . .   | 17 00 |
| 1—Climax Outfit, including chemicals, complete . . . . .  | 3 50  |
| 1—17x20 D. S. View Camera, good condition . . . . .   | 40 00 |
| 1—5x8 Tourist Outfit, including 5x8 Tourist Camera Box, 2 Daisy Plate Holders, 1 Extension Tripod, and 1 Canvas Carrying Case, very little used. Price, new, \$40.50, will sell for . . . . . | 30 00 |
| 1—10x12 Cone View Camera, Double Swing, new . . . . .   | 52 80 |
| 1—5x8 Wet Plate Stereo Camera, 3 holders, case and tripod . . . . .   | 25 00 |
| 1—6½x8½ View Camera and Lens . . . . .  | 12 00 |
| 1—6½x8½ American Optical Co. first qual. View Camera . . . . .  | 23 00 |
| 1—4¼x5½ Ex. qual. Portrait Camera . . . . .   | 17 50 |
| 1—5x8 American Optical Co. Stereo Camera . . . . .  | 25 00 |
| 1—5x8 Blair Compact Camera, good as new . . . . .   | 35 00 |
| 4—5x8 Feather Weight Holders, each . . . . .  | 75    |

**Lenses :**

|   |       |
|---|-------|
| 1—4x4 Harrison Portrait Lens . . . . .                              | 18 00 |
| 1—6½x8½ View Lens . . . . .   | 3 50  |
| 1 set ½ Tubes . . . . .   | 18 00 |
| 1—4x4 Harrison Portrait Lens . . . . .                              | 20 00 |
| 1—11x14 Zentmayer Lens, with all the smaller combinations . . . . . | 50 00 |
| 1—½ size Voigtlander Portrait Lens . . . . .                        | 12 00 |
| 1—Matched pair E. A. Stereoscopic Lenses . . . . .                  | 8 00  |
| 1—14x17 Voigtlander Portrait Lens . . . . .                         | 60 00 |
| 1—No. 9, 11x14, Ross Portable Symmetrical Lens . . . . .            | 60 00 |
| 1—11x14 Harrison Double View Lens . . . . .                         | 15 00 |
| 1—4x5 J. A. K. Single View Lens . . . . .                           | 2 00  |
| 1—Extra 4-4 Roettger Portrait Lens . . . . .                        | 20 00 |
| 1—2A Dallmeyer Lens . . . . .                                       | 82 00 |
| 1—11x14 Roettger Lens . . . . .                                     | 22 00 |
| 1—14x17 Roettger Lens . . . . .                                     | 45 00 |
| 1—8x10 Beck Lens, good as new, fitted with Prosch Shutter . . . . . | 60 00 |
| 1—set ¼ Darlot Tubes . . . . .                                      | 13 00 |
| 1—set ½ Darlot Tubes . . . . .                                      | 18 00 |
| 1—4-4 Holmes, Booth & Hayden Portrait Lens . . . . .                | 25 00 |
| 1—½ size Voigtlander Portrait Lens . . . . .                        | 10 00 |
| 1—½ size Voigtlander Lens . . . . .                                 | 25 00 |
| 1—4x5 Dallmeyer View Lens . . . . .                                 | 12 00 |
| 1—½ size L. W. Krantz Portrait Lens . . . . .                       | 12 50 |
| 1—⅓ size C. C. Harrison Portrait Lens . . . . .                     | 8 00  |
| 1—½ size Darlot quick acting Portrait Lens, central stops . . . . . | 18 00 |
| 1—No. 6, 17x20 Darlot wide-angle Hemispherical Lens . . . . .       | 35 00 |
| 1—8x10 Voigtlander Portrait Lens . . . . .                          | 80 50 |
| 1—4-4 Dallmeyer Group Lens . . . . .                                | 50 00 |
| 1—4-4 Walz Portrait Lens . . . . .                                  | 20 00 |

|   |       |
|---|-------|
| 1—¼ size Harrison Portrait Lens . . . . .           | 5 00  |
| 1—2 Darlot Rapid Hem. Lens, for 5x8 views . . . . . | 20 00 |

**CAUTION.**—All persons are warned against a man passing under the name of F. J. Howell, who claims to be an agent of the AMERICAN JOURNAL OF PHOTOGRAPHY. This party has no authority to collect money for us. When last heard of he was at Lunenburg, Mass.

**WANTED.**—Situation by first-class retoucher, printer, also fair operator. Can do bromide finishing in Crayon. Will send samples.

E. J. BLANCHET,  
West Troy, N. Y.

**ROLFE'S** Retouching Compound, the best preparation for preparing negatives for the work of retouching. Price, 40 cents per bottle. For sale by THOS. H. MCCOLLIN & Co., Philadelphia.

**FOR SALE.**—Photographic Gallery, finely equipped, heated by steam, prices first class. Town about 8000, important R. R. centre; central part of New York. Address,  
W. C. ROWLEY, Elmira, N. Y.

**FOR SALE.**—An Engraver's Line Negative, 6½x6½, in good condition. Cost \$75.00, will sell for \$25.00.  
Thos. H. McCollin & Co.,  
635 Arch St., Phila.

**FOR SALE.**—Photograph Gallery near Philadelphia, established for one year, or will take partner with some capital to push business. Address P.,  
care of Thos. H. McCollin & Co.,  
635 Arch St., Phila.

